

THE MINES OF ARIZONA

This department is under the direction of Mr. W. E. Defty, the well known mining engineer, who will carefully scrutinize all matters relating to mining in order that only reliable information regarding legitimate enterprises shall find a place here. The Republic would be pleased to receive information from any part of the state regarding the development of the mining industry. All communications should be addressed: Mining Department, Arizona Republican.

Superior

Captain Hootson and Captain John C. Greenway of the C. & A. accompanied by two other gentlemen from Lake Superior, have been visiting this district and went over all the ground between the C. & A. and the Magma. They made a lengthy visit to the Lake Superior and Arizona ground. This latter company it appears has been incorporated on a far stronger basis than ever and it is the general belief that all the ground from south of the C. & A. camp to the Magma will come under one control and it would really mean much for the district if it did as it is a large and promising area and it requires a big company to carry on the necessary development work and general exploitation.

The Old Silver King

It is reported that this old property

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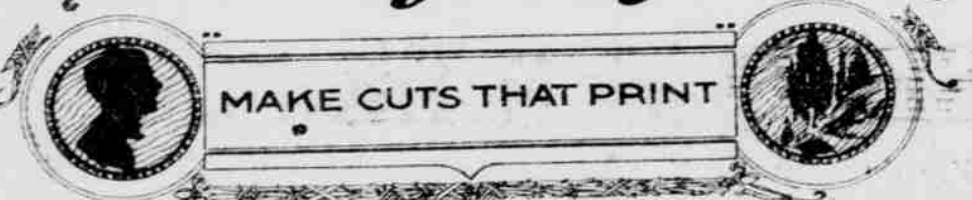
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which will operate 100 feet under water. Two large electric pumps will lower the water level from the 2500 level, its lowest point for over nearly thirty years to 2800 feet where the hydraulic pump will be installed. It will save \$8000 per month and is expected to keep the mines unwatered to 2800 feet.

It is eventually intended to lower the water to the old level of 3200 feet unless the intense heat in the mines prevents. In the old days an immense Cornish steam pump with an Oregon pine pump rod eighteen inches square and ninety feet long kept the mines unwatered from the 3200 level. It would indeed be glad news to all the mining world to again see the old rich producer renew its long history and stand alone as a monument to the ingenuity of man in the mining industry. It is a pity that the conditions are not such that the application of all the principles known at that time for cooling the atmosphere. As is well known large bodies of rich ore still remain on the lower levels. It only requires the advanced skill of man to extract it and no doubt this will be accomplished by applied ingenuity in controlling the water and making the atmosphere bearable so that men can work at the faces for mining the ore. However, who can tell? Conditions may have changed. The ground may be cooler by being submerged so many years. However if not, man will make it so.

Shattuck Arizona

The output of Shattuck Company for July was 1,019,388 pounds of copper, 20,964 ounces of silver and 118 ounces of gold. This is the lowest production for any month so far this year, and it is evident that the company has not increased ore shipments to the maximum of the contract with the Calumet & Arizona. It is just possible that this smaller product is due partially to the inability of handling any greater tonnage by the new Calumet & Arizona smelter, as it takes several weeks for a part of this kind to get down to normal working conditions.

Ore shipments for some time past have been made from the 200 and 400 foot levels. On the 200 level a drift has been advanced in ore 105 feet, the last 24 feet being oxide. A stringer 18 inches wide in this body assayed 44 per cent copper. Further work on this stringer showed a full face of ore which averaged 15 per cent. On the 400-foot level which averaged 15 per cent. On the 400-foot level a body of 6 to 7 per cent ore is being developed.

The work of unwatering the shaft is progressing rapidly and is now at a point about 50 feet below the 900 level. About 40 cars of slimes which accumulated during this level have been removed and assay from 12 to 15 per cent copper. Work is being carried on at the 600 and 700 foot levels as well as leaning the ore from the 500 level. Hereafter a sufficient tonnage was available for shipping on the upper levels, and it was not deemed advisable to open up the lower levels until increased shipments were needed.

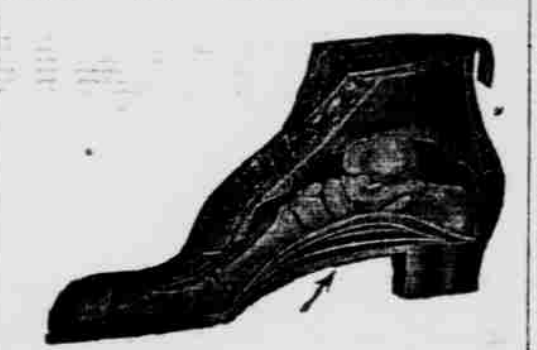
Arizona Copper Company

As was anticipated at the blowing in of the furnaces last week, they have had to be shut down for some necessary alterations and adjustments and while these are being made the old furnaces are again in commission. These little adjustments generally attend the commencement of new plants but when perfected there is no question of the increased economy that will be established in the reduction of the ores.

Prematurely

Mike had been blown some distance by a premature blast and although not much injured it rendered him unconscious. When he revived the doctor was bending over him offering a glass of water. "What's that,"

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says Mike. "Water" says the doctor. "Well," says Mike, "I'd rather been blown to atoms and had yer offered me a glass of whiskey."

Hayden

John D. Macdonald has retired from the superintendency of the milling plant at Hayden and D. D. Moffat succeeds him as superintendent. The latter comes from Utah.

Kirkland

V. E. Messinger is shipping a good quality of lead ore from his claims near the above place.

Miami

Miami Copper Company output for August totalled 3,957,500 pounds.

The following is from the Mining and Scientific Press of August 30 and we thought it would be interesting to some of our readers, especially as we have quicksilver properties so close to our own city:

Recovery of Quicksilver From Ores
During the last two years, inquiries have been made by the United States Geological Survey relative to methods of recovery and quantitative data on the subject has become available for the first time. This data shows the insignificant total output from the district although a large number of reports usually are in operation.

Quicksilver retort furnaces are of two types: the pipe retort and the D retort. Both work on the principle of distilling off the mercury from the ore separately from the bases of combustion and conveying the volatilized metal through short outside condensing pipes to a trough in which the mercury is collected. The retorts are built over fire boxes and are filled with and discharged horizontally from the same doors and from the furnace floor. The D retort by means of iron pans resting on the flat bottom and the pipe retort by semi-circular shovels and hoes. Retort plants contain from 1 to 15 retorts, 12 being the usual number for a pipe retort plant and are unexpensive to build and operate. It has been estimated that 12 inch pipe plant costs from \$1000 to \$1500, depending upon local conditions. The pipes themselves cost \$25 to \$35 whereas the D retorts cost about \$250 each. The D retort, however, increases capacity and decreases space. Recovery is probably 75 per cent of metal in the ore as charged.

Retort plants serve useful purposes at small mines or in prospecting or early development but are best used perhaps for treatment of rich ore and concentrate or furnace soot. Unless carefully operated they menace the health of workmen by causing salivation, and when in operation at new mines the temptation is to gouge out rich ore for them and possibly quickly to sacrifice a property that otherwise might be remunerative.

The great bulk of the present domestic output is from shaft furnaces in which, as is well known, the descending ore passes through the furnace flames and gases and the volatilized metal passes with the gases and impurities of combustion into a series of condenser chambers usually of brick, in which the metal is collected and from which it is drawn off.

The gases pass from the final chamber to the stack, usually through an inclined flue. The modern tendency is toward the increased use of the Huttner tile furnace perfected by Robert Scott formerly of the New Almaden mine which is adapted to both medium and fine ore. All the furnaces in Texas and Nevada are of this type. At New Idria, also, are the coarse ore furnaces designed by R. M. Newcombe and at the Guadalupe are the Daney modified Litchfield furnaces. Some thought and experimentation have recently been given to the application of rotary furnaces for quicksilver ores. It has been estimated that a Scott furnace can be built under favorable local conditions at about \$1000 per ton of capacity. According to this the common 10-ton furnace should cost about \$10,000.

Cuprite

(Continuation of extracts from Bulletin by Dr. William Harnay Emmons.)
Cuprite is a common mineral of the oxidized zones of deposits of copper sulphides and is probably secondary in all its occurrences. It is an important ore mineral at Bisbee, Ariz., where according to Runeson it is found in an impure earthy condition mixed with limonite and ferruginous clays or in crystalline masses associated with native copper. The latter occurrence is particularly characteristic of the deeper oxidized zones in the vicinity of chalcocite and other sulphides. In the Calumet & Arizona mine cuprite is found in large crystalline masses. On the 950 foot level it occurs in bunches in earthy ore, penetrated by dendritic masses of metallic copper and spotted with large rings of acicular malachite. It is abundant at Morenci, Ariz., at Cananea, Sonora and in other western districts. At Morenci, according to Lindgren it occurs normally at the upper limit of the chalcocite zone as a product of decomposition of chalcocite. Similar relations are shown at Cananea.

Tenorite

The crystalline form of the black oxide of copper is much less abundant than cuprite. The earthy, sooty variety, known as melanoite is said to be present at Butte, Montana, where it is associated with cuprite and native copper and forms dark rings about cuprite. At Bisbee melanoite is found in soft clayey ores on the 1000 foot level of the Lowell mine. Apparently it is now being deposited near the 550-foot level of the Calumet & Arizona mine. Quite a quantity of melanoite was found in the great Scott claims on Slim Jim Gulch, east of Wickenburg.

Copper Pitch Ore

This is a secondary material of complex character and somewhat uncertain composition. A sample from the Detroit mine in the Morenci district analyzed by Hildebrand, showed oxides of copper, zinc and manganese, with considerable water and silica. Material that is probably of a similar nature is found at Bisbee and

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(Copper pitch is also present in the Copper Butte property four miles from Cochran—Ed.)

Covellite

Is found in small amounts in many mining districts of North America but is not abundant in many of the larger deposits. As a rule it is associated with chalcocite and it forms chiefly as a replacement of iron or zinc sulphide. Weed estimates that covellite has formed 0.5 per cent of the ore mined at Butte. In this region it is a secondary and forms in part as an alteration product of chalcocite. It replaces zinc sulphides at Morenci. It is found coating pyrite in scintillated porphyry at Morenci, Arizona. It is found only sparingly in Arizona.

Some Bullion

A single shipment of silver bullion to London recently made by the Nipissing mine at Cobalt amounted to nearly 200,000 ounces or about 9 tons.

The London Arizona

Under date of Los Angeles, September 8, Mr. C. E. Finney has sent the following for publication:

LONDON ARIZONA CONSOLIDATED COPPER COMPANY has been organized under the laws of Arizona with a capitalization of 2,400,000 shares, par Five Dollars each or a total of twelve million dollars. This new organization was organized for the purpose of and has acquired and taken over the properties of the London Arizona Copper Company, London Range Copper Company, London Shamrock Copper Company, Hall Copper Company.

The consolidated property comprises 2355 acres of highly mineralized and developed copper ground lying about five miles north of Winslow, Arizona and four miles from the new smelting plant of the American Smelting and Refining Company at Hayden, Arizona. The holdings of the consolidated company comprise the heart of the lime porphyry deposits of the Banner Mining District and practically all of the copper deposits in this district in the line with the exception of the properties of the Gila Copper Sulphide Company which adjoin the consolidated companies' properties on their east line. Ample railroad facilities are available. The Southern Pacific Railroad running on the east and also on the south side of the properties within a distance of less than five miles. The Gila and the San Pedro rivers afford an abundance of water for all purposes. A large amount of development work has been done on these properties and since the first of January the London Arizona has been shipping to the El Paso plant of the American Smelting and Refining Company. The ores of the consolidated property are of the self fluxing type being also largely direct smelting requiring no concentration. The ore bodies occur in the form of large beds being replacements in the lime stone and quartzite similar to the properties of Bisbee, Clifton-Morenci and Cananea, also as disseminations in the associated porphyries.

The ores of the district range in copper from 2 per cent to 18 per cent besides gold and silver values. The silver lead ores of the district are shipped have shown an average of 25 per cent lead. The London Arizona Consolidated is in a strong position now to vigorously develop

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its large estate. A treasury fund of \$500,000 cash has been provided by Mr. Williamson and associates for immediate use for equipment and development. Extensive operations will begin the first of October and several shafts which have been under operation will be equipped with heavier machinery for development and will be vigorously pushed. The directorate of the new London-Arizona Consolidated will be composed of men who have been identified with some of the largest mining, smelting and refining enterprises in the northwest and southwest.

Volney D. Williamson, Spokane, Washington — Mr. Williamson was identified with the Le Roi, Center Star and War Eagle Copper Companies of Rossland, B. C. also with the Hecla and Marsh lead properties of the Cour d'Alene, Idaho. He was also interested with John Hays Hammond in South America and in the Santa Rosa silver mines of Mexico.

Walter A. Burrell, Portland, Oregon — Mr. Burrell is a capitalist with large interests in the state of Oregon. John A. Finch, Spokane, Washington — Mr. Finch is one of the largest operators in the northwest. He was associated with the old firm of Finch & Campbell. The firm owned the old Standard and Mammoth lead mines of Coeur d'Alene which were absorbed by the Federal Mining and Smelting Company.

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